CLAIMS

What is claimed is:

1. A server-based network presence and location agent which acquires presence and location information about a plurality of mobile devices operating on a wireless network from an entity on the wireless network other than the mobile devices, and which provides the acquired presence and location information to remote applications which use said information on a computer network.

2. A server-based network presence and location agent as recited in claim 1, wherein the network presence and location agent is configured to acquire the presence and location information in response to requests for said information from one or more of the remote applications.

3. A server-based network presence and location agent as recited in claim 1, wherein the network presence and location agent acquires the presence and location information independently of any requests for said information.

4. A server-based network presence and location agent as recited in claim 1, wherein the network presence and location agent receives the presence or location information in extensible markup language (XML) format using Short Message Peer to Peer Protocol (SMPP).

5. A server-based network presence and location agent as recited in claim 4, wherein the network presence and location agent receives the presence or location information using Short Message Peer to Peer Protocol (SMPP).

6. A server-based network presence and location agent as recited in claim 4, wherein the network presence and location agent provides the presence or location information to the remote applications in extensible markup language (XML) format using Hypertext Transport Protocol (HTTP).

7. A mobile network presence and location agent comprising:

a pull agent to receive a request from a remote application for presence or location information about a mobile device operating on a wireless network, and to send a corresponding request for the presence or location information to a Short Message Service Center (SMSC), such that the SMSC responds by querying a Home Location Register (HLR) of the wireless network to obtain the requested presence or location information, wherein the SMSC responds by providing the presence or location information to the pull agent, and wherein the pull agent subsequently provides the presence or location information to the remote application; and

a push agent to receive location or presence information about a mobile device operating on the wireless network from the HLR, wherein the presence or location information received by the push agent is not in response to a specific

request for said information, and wherein the push agent subsequently provides the presence or location information to a remote application.

8. A mobile network presence and location agent as recited in claim 7, wherein the SMSC provides the presence or location information to the pull agent in extensible markup language (XML) format using Short Message Peer to Peer Protocol (SMPP).

9. A mobile network presence and location agent as recited in claim 7, wherein the pull agent subsequently provides the presence or location information to the remote application in XML format using Hypertext Transport Protocol (HTTP).

10. A mobile network presence and location agent as recited in claim 7, wherein:

the SMSC provides the presence or location information to the pull agent in extensible markup language (XML) format using Short Message Peer to Peer Protocol (SMPP); and

the pull agent subsequently provides the presence or location information to the remote application in XML format using Hypertext Transport Protocol (HTTP).

11. A mobile network presence and location agent as recited in claim 10, wherein the push agent provides the presence or location information to a remote application on the computer network in XML format using HTTP.

12. A mobile network presence and location agent as recited in claim 7, wherein the push agent communicates with the HLR according to J-STD-025.

13. A mobile network presence and location agent as recited in claim 7, further comprising a Session Initiation Protocol (SIP) agent to receive location or presence information about a processing device on a network from an SIP server, and to send the location or presence information about the processing device to a remote application on the computer network.

14. A mobile network presence and location agent as recited in claim 13, wherein the SIP agent sends the location or presence information to the remote application in XML format using Hypertext Transport Protocol (HTTP).

15. A mobile network presence and location agent as recited in claim 13, wherein the processing device is on an Internet Protocol (IP) based network.

16. A mobile network presence and location agent comprising:

a pull agent to receive a request for presence or location information about a mobile device from a remote application over a computer network, and to send a corresponding request for the presence or location information to a Short Message Service Center (SMSC), such that the SMSC responds by querying a Home Location Register (HLR) of a wireless network on which the mobile device operates to obtain the requested presence or location information, wherein the SMSC provides the presence or location information to the pull agent in

extensible markup language (XML) format using Short Message Peer to Peer Protocol (SMPP), and wherein the pull agent subsequently provides the presence or location information to the remote application in extensible markup language (XML) format over the computer network using Hypertext Transport Protocol (HTTP), the presence or location information for use by the remote application; and

a push agent to receive location or presence information about a mobile device operating on the wireless network from the HLR, wherein the presence or location information received by the push agent is not in response to a specific request for said information, and wherein the push agent subsequently provides the presence or location information to a remote application over the computer network in XML format using HTTP.

17. A mobile network presence and location agent as recited in claim 16, further comprising a Session Initiation Protocol (SIP) agent to receive location or presence information about a processing device on an Internet Protocol (IP) based network from an SIP server, and to send the location or presence information about the processing device to a remote application in XML format using SMPP.

18. A mobile network presence and location agent as recited in claim 16, wherein the push agent communicates with the HLR according to J-STD-025.

19. A processing system comprising:

a processor;

a communications interface by which to communicate on a computer network;

a communications interface by which to communicate with a Short Message Service Center (SMSC); and

a storage facility storing instructions for execution by the processor, which instructions configure the processing system to:

receive a request for presence or location information about a mobile device operating on a wireless network from a remote application over a computer network;

send a corresponding request for the presence or location information to the SMSC, to cause the SMSC to query a Home Location Register (HLR) of the wireless network to obtain the requested presence or location information, wherein the presence or location information is received from the SMSC in extensible markup language (XML) format using Short Message Peer to Peer Protocol (SMPP); and

provide the received presence or location information to the remote application in XML format using Hypertext Transport Protocol (HTTP) over the computer network, the presence or location information for use by the remote application.

20. A processing system as recited in claim 19, wherein the instructions further configure the processing system to receive location or presence information about a mobile device operating on the wireless network from the HLR without having requested said information, and to subsequently provide the received presence or location information to a remote application over the computer network in XML format using HTTP.

21. A processing system as recited in claim 19, wherein the instructions further configure the processing system to receive location or presence information about a processing device on an Internet Protocol (IP) based network from a Session Initiation Protocol (SIP) server, and to send the location or presence information about the processing device to a remote application in XML format using HTTP.

22. A gateway server comprising:

a processor;

a communications interface by which to communicate with a packet-based computer network;

a communications interface by which to communicate with a wireless network;

means for providing hypermedia content from the servers to the mobile devices in response to requests from the mobile devices; and

a pull agent to receive a request from a remote application for presence or location information about a mobile device operating on a wireless network, and to send a corresponding request for the presence or location information to a remote entity on the wireless network, wherein the remote entity is not any of the mobile devices, wherein the remote entity responds by providing the presence or location information to the pull agent, and wherein the pull agent subsequently provides the presence or location information to the remote application.

23. A gateway server as recited in claim 22, wherein the remote entity is a Home Location Register (HLR) of the wireless network.

24. A gateway server as recited in claim 23, wherein the pull agent receives the information via a Short Message Service Center (SMSC).

25. A gateway server as recited in claim 24, wherein the SMSC provides the presence or location information to the pull agent in extensible markup language (XML) format using Short Message Peer to Peer Protocol (SMPP).

26. A gateway server as recited in claim 25, wherein the pull agent subsequently provides the presence or location information to the remote application in XML format using Hypertext Transport Protocol (HTTP).

27. A gateway server as recited in claim 22, further comprising a push agent to receive location or presence information about a mobile device operating on the wireless network from the remote entity, wherein the presence or location information received by the push agent is not in response to a specific request for said information, and wherein the push agent subsequently provides the presence or location information to a remote application.

28. A gateway server as recited in claim 27, wherein the push agent communicates with the remote entity according to J-STD-025.

29. A gateway server as recited in claim 28, wherein the push agent provides the presence or location information to a remote application on the computer network in extensible markup language (XML) format using HTTP.

30. A gateway server as recited in claim 22, further comprising a Session Initiation Protocol (SIP) agent to receive location or presence information about a processing device on a network from an SIP server, and to send the location or presence information about the processing device to a remote application on the computer network.

31. A gateway server as recited in claim 30, wherein the SIP agent sends the location or presence information to the remote application in extensible markup language (XML) format using Hypertext Transport Protocol (HTTP).

32. A gateway server as recited in claim 31, wherein the processing device is on an Internet Protocol (IP) based network.

33. An apparatus for providing an application with location and presence information about a mobile device operating on a wireless network, the method comprising:

means for receiving presence or location information about the mobile device from a remote entity; and

means for sending the received presence or location information to a remote application in extensible markup language (XML) format using Hypertext Transport Protocol (HTTP).

34. An apparatus as recited in claim 33, wherein said means for receiving the presence or location information comprises means for receiving the presence or location information in an XML format using Short Message Peer to Peer Protocol (SMPP).

35. An apparatus as recited in claim 34, wherein said means for receiving the presence or location information comprises means for receiving the presence or location information from a Short Message Service Center (SMSC).

36. An apparatus as recited in claim 33, wherein said means for receiving the presence or location information comprises means for receiving the presence or

location information from a Home Location Register (HLR) of the wireless network.

37. An apparatus as recited in claim 33, wherein said means for receiving the presence or location information comprises means for receiving the presence or location information from a Session Initiation Protocol (SIP) server by using SIP.

38. An apparatus as recited in claim 33, wherein said means for receiving the presence or location information comprises means for receiving the presence or location information from a General Packet Radio Service (GPRS) server.

39. An apparatus as recited in claim 33, wherein the presence or location information can be received in response to a request for the presence or location information previously transmitted to the remote entity.

40. An apparatus as recited in claim 39, wherein the request for the presence or location information is in response to a prior request from a remote application requiring said information.

41. An apparatus as recited in claim 33, further comprising means for pushing the presence or location information to the remote application independent of any request for said information.

42. An apparatus as recited in claim 41, wherein the presence or location information is pushed to the remote application in a manner compliant with J-STD-025.

43. A method of providing an application with location and presence information about a mobile device operating on a wireless network, the method comprising:

receiving presence or location information about the mobile device from a remote entity; and

in response to receiving the presence or location information, sending the presence or location information to a remote application in extensible markup language (XML) format using Hypertext Transport Protocol (HTTP).

44. A method as recited in claim 43, wherein said receiving the presence or location information comprises receiving the presence or location information in an XML format using Short Message Peer to Peer Protocol (SMPP).

45. A method as recited in claim 44, wherein said receiving the presence or location information comprises receiving the presence or location information from a Short Message Service Center (SMSC).

46. A method as recited in claim 43, wherein said receiving the presence or location information comprises receiving the presence or location information from a Home Location Register (HLR) of the wireless network.

47. A method as recited in claim 43, wherein said receiving the presence or location information comprises receiving the presence or location information from a Session Initiation Protocol (SIP) server by using SIP.

48. A method as recited in claim 43, wherein said receiving the presence or location information comprises receiving the presence or location information from a General Packet Radio Service (GPRS) server.

49. A method as recited in claim 43, wherein the presence or location information can be received in response to a request for the presence or location information previously transmitted to the remote entity.

50. A method as recited in claim 49, wherein the request for the presence or location information is in response to a prior request from a remote application requiring said information.

51. A method as recited in claim 43, wherein the presence or location information is received as push information, not in response to a specific request.

52. A method as recited in claim 51, wherein the presence or location information is received as push information in a manner compliant with J-STD-025.

53. A method of providing an application on a computer network with location and presence information about a mobile device operating on a wireless network, the method comprising:

receiving a first request for presence or location information from an application over the computer network;

in response to the request, sending a second request corresponding to the first request to a Short Message Service Center (SMSC), the SMSC obtaining the requested information in response to the second request by querying a Home Location Register (HLR) of the wireless network;

receiving the requested information from the SMSC;

in response to receiving the requested information from the SMSC, sending the requested information to the application over the computer network.

54. A method as recited in claim 53, wherein said receiving the requested information from the SMSC comprises receiving the requested information in extensible markup language (XML) format using Short Message Peer to Peer Protocol (SMPP).

55. A method as recited in claim 54, wherein said sending the requested information to the application comprises sending the requested information to the application in XML format by using Hypertext Transport Protocol (HTTP).

56. A method of providing an application on a computer network with location and presence information about a mobile device operating on a wireless network, the method comprising:

receiving a first request for presence or location information from an application over the computer network;

in response to the request, sending a second request corresponding to the first request to a Session Initiation Protocol (SIP) server by using SIP, the SIP server obtaining the requested information in response to the second request by using SIP to query a SIP user agent of the processing device;

receiving the requested information from the SIP server by using SIP;

in response to receiving the requested information from the SIP server, sending the requested information to the application over the computer network.

57. A method as recited in claim 56, wherein said sending the requested information to the application over the computer network comprises sending the requested information to the application over the computer network in extensible markup language (XML) format by using Hypertext Transport Protocol (HTTP).